n columns

Key matrix

N rows

Computer 12

Key assignment module 14

key sets

Device manufacturer(s) 18

10

16

Fig. 1

Fig. 2 overall logic

Receive N = #rows, n = #columns of key matrix, T = max. # of key sets 20

use code $C(n, \lceil \log_N T \rceil, N, d)$ whose Hamming distance d is max possible 22

Output (T) vectors of length n over alphabet $(0, .., N-1)$ representing key sets 24

map each vector to unique codewords for j^{th} device key set; map to $\sum b \cdot G$ 26

Store G, indices of key for future reconstruction of device key 28

Associate vectors w/ respective device serial nos. 30

If desired, rename alphabet symbols using diff. permutation in each column 32
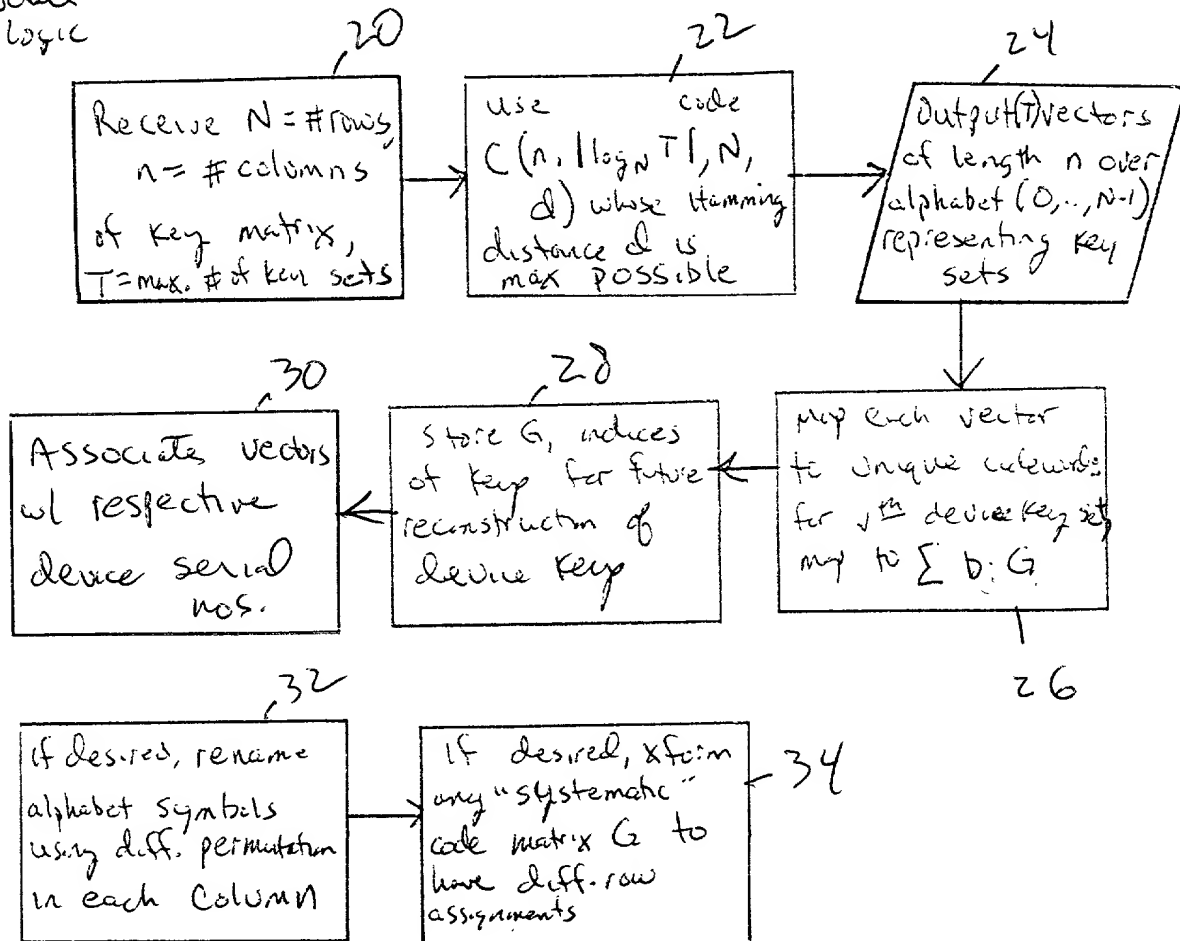
If desired, xform any "systematic" code matrix G to have diff. row assignments 34

Fig. 3 optional enhancements